

## Patent Abstracts of Japan

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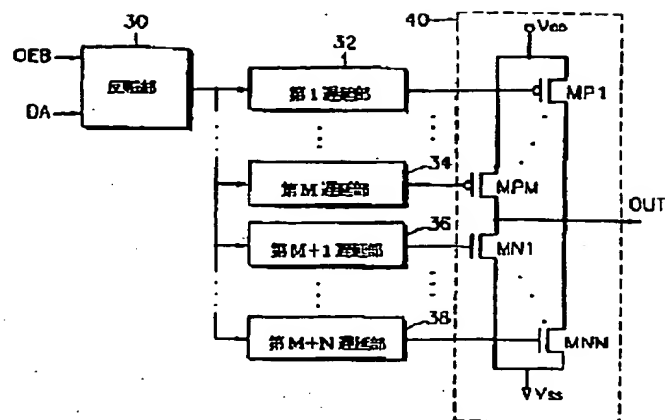
APPLICATION DATE : 19-07-99  
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TITLE : OUTPUT BUFFER AND BUFFERING  
 METHOD THEREFOR



ABSTRACT : PROBLEM TO BE SOLVED: To reduce the ground bouncing, noise and distortion of buffered output data even while performing an operation at a high speed.

SOLUTION: First to M+N-th delay parts 32-38 delay input data DA by the mutually different M+N (in this case, M and N are respectively an integer  $\geq 2$ ) pieces of time and output the delayed data one by one with the time difference of  $T/M+N$  (in this case, T is time required for shifting the level of output data). Then, by ON/OFF controlling transistors MP1-MPM and MN1-MNN of a data output part 40 by the delayed data, control is performed so as to gradually change the transition time level of the output data and the output data OUT are outputted from the data output part 40.

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